ROUTING AND RECORD SHEET

SUBJECT: (Optional)

STAT FROM: Deputy Director of Logistics
STAT 2C02

EXTENSION | NO.

DATE: 21 December 1981

TO: (Officer designation, room number, and building)	DATE RECEIVED	DATE FORWARDED	OFFICER'S INITIALS	COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)
1. D/ODP 2D0105 HQS				Recently, I visited computer facilities constructed by McDonnell Douglas in St. Louis, Missouri, which are supposed to be the "state-of-the-art." I was very impressed and would hope that we could include many of the things seen in any new construction at Headquarters. Their use of emergency generators and uninterruptible power systems and the facility layout vary significantly from the approach we are taking and deserve a lot of thought. I was so impressed that while there, I asked whether or not their Chief of Data Processing would be available in case some senior officers of this Agency wished to visit, and they said he would be. Specifically, I thought either or both of you might like to do so. The visit could be done in one day without having to stay overnight if you want to work it that way. If you are interested, give me a call and I will make the arrangements. STAT
2. DD/ODP				
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Attachment

FORM 1-79 610 USE PREVIOUS EDITIONS

(over)

cc: C/BPS/OL, w/att
DCI/OGC, w/att

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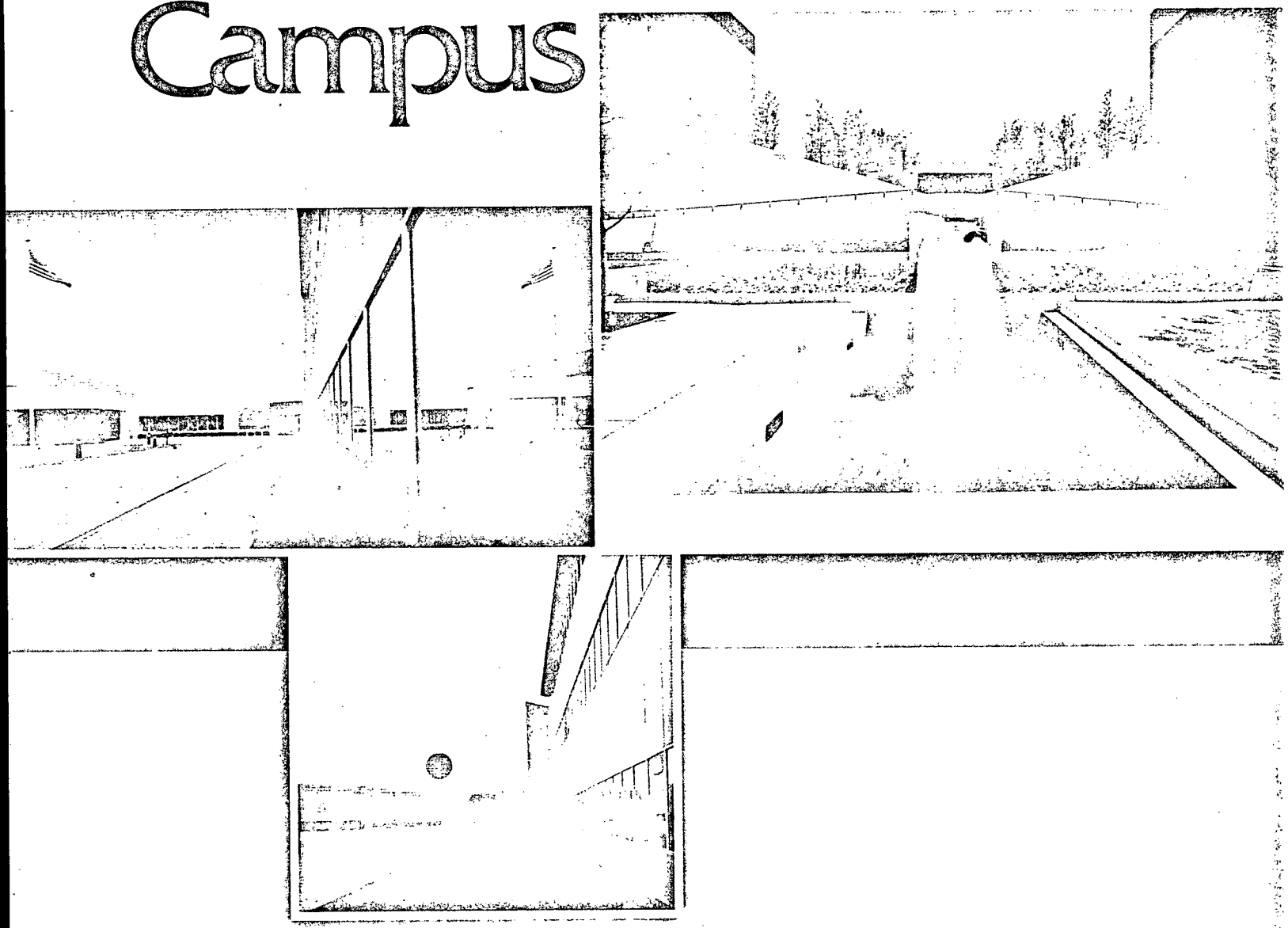
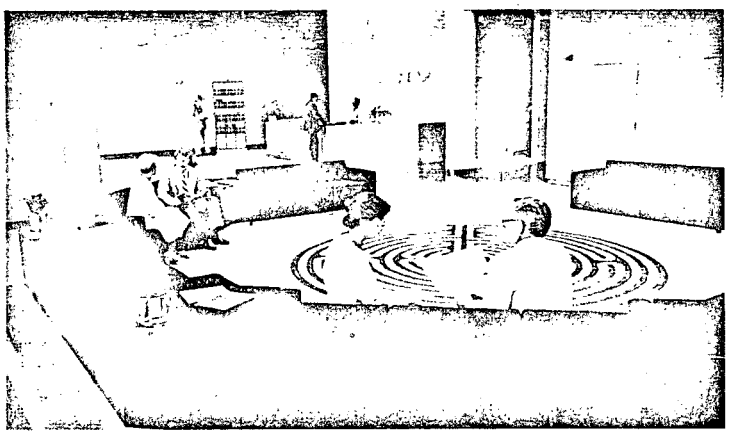
MCAUTO Campus



MCAUTO

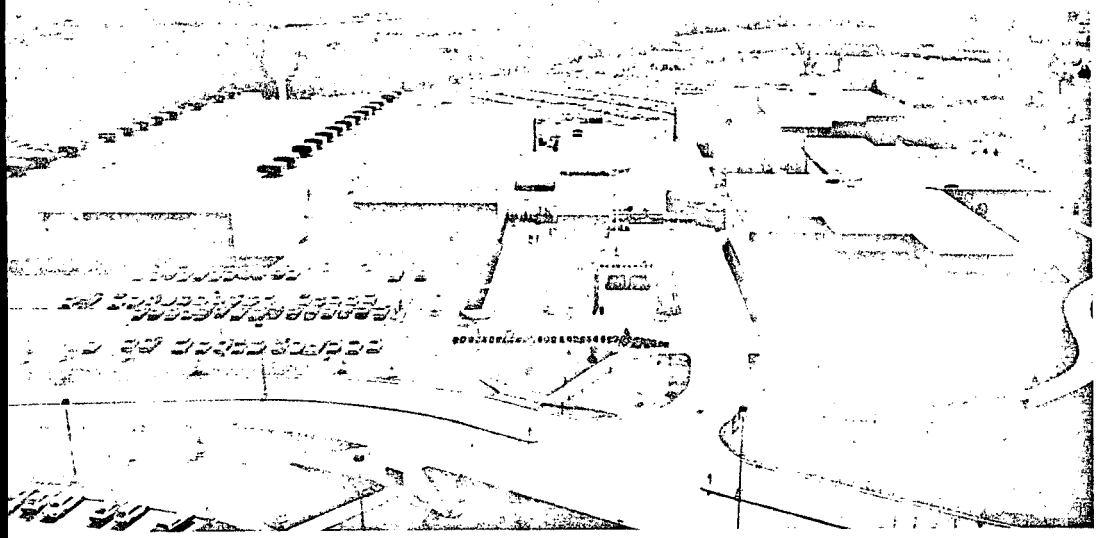
Setting the Standard in Data Processing

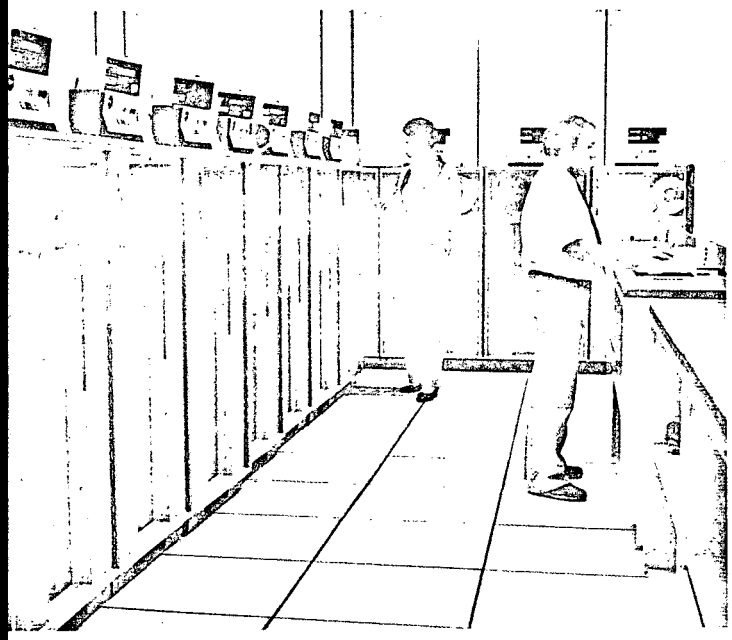
MCAUTO® Campus is a unique facility for computer operations and data processing personnel. Custom-designed by Hellmuth, Obata and Kassabaum, MCAUTO Campus is more than 800,000 square feet of space offering a comfortable atmosphere for our professional and technical employes, and an efficient environment for total service to our clients. General contractor McCarthy Brothers used MCAUTO MSCS — Management Scheduling and Control System — to plan and coordinate the activities involved in this large construction project which was completed on schedule and within budget. During the move to the new facility — which began in August 1980 and continued in stages until mid-February 1981 — MCAUTO provided uninterrupted service to all clients.



Special Features of MCAUTO Campus

- MCAUTO Campus has nine IBM computers — eight 3033s and one 3031 — with a total of 121 megabytes of main storage, providing both time-sharing and batch processing.
- Our five CDC computers — two 750s, two 730s and one 176 — constitute a loosely coupled network for batch, extended batch and time-sharing processing.
- Two levels in the computer building are each 450 feet long — together about the length of three football fields.
- The MCAUTO Campus Tape Library contains 130,000 magnetic tape volumes of client information and programs. Each reel can hold 150 million characters. MCAUTO Campus computers use 110 tape drives.
- MCAUTO Campus uses both permanent-mount and removable disk packs on the 649 disk drives.
- MCAUTO Campus has 1150 virtual volumes in its IBM Mass Storage Systems.
- All computer equipment, communications equipment and the tape library are on 121,000 square feet of raised floors, under which all electrical wires, telephone cables and air conditioning ducts are housed.
- Controlled access to the computer rooms provides maximum security for client data.
- Numerous energy-efficient systems provide climate control in the computer rooms. The heat absorbed from the operation of the computers is recirculated throughout MCAUTO Campus to provide nearly 100 percent of the winter heating.
- Other energy-efficient features at MCAUTO Campus include double-pane solar windows, individually operated lights and an Energy Management System to monitor equipment. Annual energy usage at MCAUTO Campus is 96 million kilowatt hours — equivalent to 2800 average homes.





- MCAUTO engineers designed and developed the Facilities Management System which monitors all electrical and mechanical equipment associated with the computers. There are 1900 sensors throughout the computer building and the Energy Center to detect abnormal situations.
- In the event of power failure, 10,020 battery cells can provide 15 minutes of power to all computers. Four emergency diesel generators, each with a 950-kilowatt capacity, can power priority computer systems and other systems throughout the complex.
- The 150,000-gallon chilled-water storage tower serves as an expansion tank for the chilled water system, and the tower can be tapped for emergency use.
- Computer operations support personnel are adjacent to the computer building with 137,000 square feet on three levels. An escalator system provides increased mobility for these professional support employes.
- Management, administrative and marketing support personnel, consultants, technicians and programmers are housed in three buildings which have 295,000 square feet.
- Professional librarians staff the MCAUTO Campus Library, one of the few in the country — and the only one in the Midwest — to specialize in data processing and computer science material. The library offers an interlibrary loan service — giving us access to nearly 70 percent of all library materials in the country.
- Specially equipped training and demonstration rooms are used for client sessions and employe education.
- A jogging track for employes and their families encircles MCAUTO Campus. Locker rooms and showers are available to employes on a 24-hour, seven-day basis.

MCAUTO
MCDONNELL DOUGLAS
Setting the standard in data processing

Box 516, Saint Louis, Missouri 63166, Tel. (314) 232-8021

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Brief Background and History - MCAUTO Campus

Started development of ideas, concepts, block plans, flow diagrams, some master planning in 1978. Various evolutions of basic plan, (avionics lab, etc.) 74 + acres would be dedicated to world headquarters - MCAUTO. Future expansions planned for on office buildings and computers.

Some milestones:

January 1979 - Ground Broken (fast track method)

October 15, 1980 - First Building Available for Occupancy

February 22, 1981 - Last Computer/People Move

Total of 19 weeks to move 2500 people and all computer and support equipment into 801,000 square feet total floor space.

Serviced by Union Electric power, Southwestern Bell Telephone, M.S.D., St. Louis County water supply and chose not to hookup to Laclede Gas, so any cafeteria cooking, etc. is all electric.

CONSTRUCTION CONSIDERATIONS

SIZE/THEME

- CAMPUS TYPE BUILDINGS
- NON-AEROSPACE
- LARGE ENOUGH FOR CURRENT COMPUTER EQUIPMENT PLUS EXPANSION OF ABOUT 45% (THEN AN EXPANSION PLANNED TO THE NORTH)
- 2500 PEOPLE INITIALLY, UP TO 3500 EVENTUALLY (WITH TWO MORE OFFICE BUILDINGS)
- CAPABILITY TO EXPAND ENERGY CENTER TO NORTH AND PARKING AREAS ALL AROUND COMPLEX

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POWER

- TWO 34.5 KV TRANSMISSION LINES WITH AUTOMATIC SWITCH OVER

- RPU SYSTEM AND BATTERY BACKUP (UP TO ONE HOUR CAPACITY FOR POWER OUTAGES)

- DIESEL GENERATORS FOR LIFE/SAFETY ITEMS AND 50% COMPUTER EQUIPMENT

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HVAC

- UTILITY GALLERY CONCEPT - COMPUTER CENTER

  A. LESS COSTLY SPACE FOR AIR HANDLING UNITS

  B. MINIMIZES UNDER FLOOR WATER PIPING

  C. GREATER FLEXIBILITY IN EDP SPACE PLANNING

  D. ALLOWS DUCT ACCESS FOR OUTSIDE AIR COOLING

  E. KEEPS MAINTENANCE OUT OF DATA CENTER

- UTILIZE HEAT PRODUCTION OF COMPUTER EQUIPMENT FOR WINTER HEATING

  A. EXCESS HEAT IS RECOVERED WITH TUBE BUNDLE LOOP IN CHILLER #4

- CENTRALIZED REFRIGERATION PLANT FOR ENTIRE COMPLEX WITH CHILLED WATER DISTRIBUTION SYSTEM TO ALL BUILDINGS

- EXCESS HEAT PRODUCED IS EXHAUSTED THROUGH FOUR COOLING TOWERS

- 150,000 GALLON STORAGE TANK

  A. PROVIDES FOR EMERGENCY CHILLED WATER FOR COMPUTER COOLING

  B. REDUCES PEAK DEMAND ON MECHANICAL CHILLERS

  C. PROVIDES FOR SYSTEM (WATER) EXPANSION

  D. RESERVE SUPPLY OF FIRE PROTECTION WATER

CONSERVATION

- ORIENTATION OF BUILDINGS WITH N/S SILVER REFLECTIVE DOUBLE PANE GLASS - ARCHITECTURAL OVERHANGS MINIMIZE HIGH SOLAR ANGLE HEAT GAIN

- EXTERIOR CONSTRUCTION OF SILVER FINISH, INSULATED ALUMINUM PANELS (ACCENT COLORS OF RED, BLUE, BLACK FOR CHANGING COLOR PATTERNS)

- WINTER HEATING REQUIREMENTS SATISFIED FROM WASTE HEAT

- SYSTEM ALLOWS USE OF OUTSIDE AIR IN SPRING/FALL

- INDIVIDUALLY CONTROLLED LIGHT FIXTURES TO ALLOW 1,2,3 TUBES - ON/OFF

- 60 F.C. SOFTER INTENSITY LIGHTING (AVERAGE)

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GROWTH

- DELIBERATELY PLANNED GROWTH IN COMPUTER EQUIPMENT BUILDING (TWO OFFICE BUILDINGS AND ENERGY CENTER)

- PARKING LOT EXPANSIONS

- ROBERTSON IN-FLOOR DUCT DELIBERATELY OVERSIZED FOR FUTURE NEEDS

- CONDUIT IN PASSAGEWAYS AND BUILDING TO BUILDING AND LEVEL TO LEVEL OVERSIZED (COLUMNS IN BUILDING 307 FOR VERTICAL AND HORIZONTAL CABLING UNDER 2' HIGH RAISED FLOORS)

- 11' HIGH CEILINGS IN COMPUTER SUPPORT BUILDING 306 FOR POSSIBLE FUTURE CONVERSION TO RAISED FLOOR AREA

- WATER PIPING, PASSAGEWAYS, ETC. BUILT FOR FUTURE NEW BUILDINGS

SAFETY/SECURITY

- PERIMETER FENCED
- ACCESS BY BADGE OR THROUGH LOBBY
- CENTRAL (REMOTE) SECURITY CONTROL WITH MARDIX BOOTHS (PEAK PERIODS - ENTRANCES MANNED)
- COMPUTER ROOMS/OTHER AREAS REQUIRE KEY CARD AND KEYBOARD NUMBER FOR ACCESS
- SPRINKLERED THROUGHOUT
- HALON SYSTEM UNDER RAISED FLOORS
- FIRE LOOP SURROUNDS BUILDINGS WITH SUPPLY FROM TWO DIRECTIONS
- FIRE DEPARTMENT AND EQUIPMENT ON SITE
- FACILITIES MONITORING SYSTEM (FMS)

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